

REMARKS

All claims are pending, of which Claims 1, 31, 41, 42, 55, 56, 57, 61, 64, 65, 66, 78, and 79 are independent. Claims 1-4, 7-9, 11, 28, 30-37, 39-46, 49-52, 54-60, 62-75 and 77-79 were rejected under 35 U.S.C. § 102(b) based on U.S. Patent No. 4,355,404 by Uzunoglu. The rejections are traversed. Applicant notes with appreciation that Claims 5, 6, 10, 12-27, 29, 38, 47, 48, 53, 61 and 76 are allowable if rewritten in independent form.

Rejections under 35 U.S.C. § 102(b)

Preferred embodiments relate to a phase controlled oscillator circuit. The oscillator circuit has a resonant frequency. An input signal is coupled to an oscillating signal. The input signal has a frequency approximately equal to, or less than the resonant frequency.

A. Oscillator Filters Pulse Width Variation, Independent Claims 1, 31 and 41

According to an aspect of the invention, the input signal is coupled to an oscillating signal in the oscillator to filter pulse-width variations of the input signal, as set forth in independent Claims 1, 31, and 41. With this technique, for example, an injection locked oscillator can be provided that reduces pulse width variation on the input signal.

Uzunoglu relates to a synchronous oscillator used for carrier detection in a QPSK modem. The synchronous oscillator described is an injection locked oscillator. Although Uzunoglu discusses an injection locked oscillator, Uzunoglu does not discuss the claimed *coupling of the input signal with an oscillating signal in the oscillator to filter pulse-width variations of the input signal*. For example, the passages cited by the Examiner (Uzunoglu col. 3, ll. 52-53, col. 5, ll. 40-44, and col. 9, ll. 5-14) state that the external signal can be pulsed, that the phase error between the input and output signal can be kept within 2 degrees, and that the synchronous oscillator follows carrier drift. None of these passages, however, teach the use of an oscillator circuit to filter pulse-width variation. Consequently, Uzunoglu does not discuss every aspect of independent Claims 1, 31, and 41. Thus, the rejection of Claims 1, 31, and 41, and their respective dependents should be withdrawn. Reconsideration is respectfully requested.

B. Ring Oscillator, Independent Claims 42, 55, and 56

Independent Claims 42, 55, and 56 are amended by the present amendment to include the limitation that the oscillator is a ring oscillator. This limitation is similarly recited in dependent Claim 18. Thus, no new matter is introduced. It should be noted that the Examiner indicated that dependent Claim 18 would be allowable if rewritten in independent form.

It respectfully submitted that Uzunoglu does not discuss a ring oscillator, and therefore, independent Claims 42, 55, and 56 and their respective dependents should be allowed. Reconsideration is respectfully requested.

C. Gating the Oscillator, Independent Claims 57, 64, and 65

Independent Claims 57, 64, and 65 require an oscillator that includes a coupler, which couples an input signal to an oscillating signal in the oscillator. The claims are amended to require that the oscillating signal is gated by the input signal at each cycle. Support for this amendment can be found in the application, for example, at pg. 6, ll. 10 - pg. 8, ll. 2.

The Examiner relies on Uzunoglu, col. 4, ll. 31-23, to show the claimed oscillating signal that is gated by the input signal. This passage, cited by the Examiner, however, does not discuss the claimed the oscillating signal that is gated by the input signal at each cycle. Rather, the passage the Examiner cites relates to burst-mode operation, not gating by an input signal. By way of contrast, with burst mode operation, the input signal turns completely off for many cycles and then turns completely on for many cycles. Thus, this burst operation mode, described in Uzunoglu, is not the same as the claimed gating by the input signal, which gates the oscillator on each cycle.

By gating the oscillator signal on each cycle, for example, the claimed technique can be used to reset phase error on each cycle of the reference clock. In doing so, it can overcome the jitter accumulation problem of prior art phase-locked loop clock multipliers. Conversely, Uzunoglu does not address the increased jitter problems associated with phase-locked loop clock multipliers, nor do the references discuss the solutions presented in the claimed invention.

As such, the rejection of independent Claims 57, 64, and 65, and their respective dependent claims should be withdrawn. Reconsideration is respectfully requested.

D. Input Pulse Duration, Independent Claims 66, 78, and 79

Independent Claims 66, 78, and 79 require an oscillator with a coupler that couples the input signal with an oscillating signal. The input signal has a pulse duration less than or equal to the pulse duration of the oscillating signal. Independent Claims 66, 78, and 79 are amended by the present amendment to include the limitation that the pulse generator generates the input signal from a reference clock. This limitation is similarly required by dependent Claim 6. Thus, no new matter is introduced. It should be noted that the Examiner indicated that dependent Claim 6 would be allowable if rewritten in independent form.

Although Uzunoglu mentions that the input may be pulsed, there is no further discussion of pulses or pulse duration. For example, the passage cited by, Uzunoglu col. 3, ll. 52-53, briefly mentions that the signal may be pulsed: “the external signal to the synchronous oscillator can be sinusoidal, pulsed, or some other waveform.” By way of contrast, the claims require generating an input signal with a pulse duration less than or equal to the pulse duration of the oscillating signal.

Moreover, by including a pulse generator, which generates the input signal from a reference clock, the claimed oscillator circuit can filter jitter from the reference clock. Uzunoglu, however, neither mentions a pulse generator (e.g. input oscillator), nor discusses jitter filtering.

As such, the rejection of independent Claims 66, 78, and 79 and their respective dependent claims should be withdrawn. Reconsideration is respectfully requested.

Objections to the Specification

The related applications paragraph was objected to based on informalities. In response to the objection, the related applications paragraph is amended by the present amendment.

Acceptance and reconsideration are respectfully requested.


The title of the application was objected to as not descriptive. In response to the objection, the title is amended by the present amendment. Acceptance and reconsideration are respectfully requested.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned attorney.

Respectfully submitted,

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Dated: 8/27/04